W September 24, 1999

TO: AO/Chief Information Officer
H/Associate Administrator for Procurement

FROM: W/Assistant Inspector General for Auditing

SUBJECT: Final Report on Year 2000 Program Oversight of
NASA Grants and Cooperative Agreements
Assignment Number A9901502
Report Number IG-99-048

The subject final report is provided for your information and use. Please refer to the Executive Summary for the overall audit results. Our evaluation of your comments is incorporated into the body of the report. Your comments on a draft of this report were responsive to the recommendations. The recommendations will remain open for reporting purposes until corrective action is completed. Please notify us when actions have been completed on the recommendations, and provide us the results of the actions.

If you have questions concerning the report, please contact Mr. David L. Gandrud, Program Director, Information Technology Program Audits, at (650) 604-2672, or Ms. Rebecca L. Andrade, Auditor-in-Charge, at (407) 867-4491. We appreciate the courtesies extended to the audit staff. The final report distribution is in Appendix F.

[original signed by]

Russell A. Rau

Enclosure

cc:
B/Chief Financial Officer
B/Comptroller
BF/Director, Financial Management Division
G/General Counsel
JM/Director, Management Assessment Division

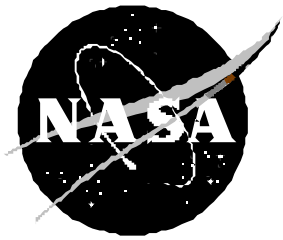
bcc:
AO/Audit Liaison Representative
HK/Audit Liaison Representative
AIGA, IG, Reading (w/o Encl.) Chrons
ARC/204-11/Program Director
KSC/OIG/Auditor-in-Charge

IG-99-048

AUDIT REPORT

YEAR 2000 PROGRAM OVERSIGHT OF NASA GRANTS AND COOPERATIVE AGREEMENTS

September 24, 1999



National Aeronautics and
Space Administration

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Acronyms

CIO	Chief Information Officer
FAQ's	Frequently Asked Questions
JPL	Jet Propulsion Laboratory
OMB	Office of Management and Budget
PIC's	Procurement Information Circulars
Y2K	Year 2000

Contents

NASA Office of Inspector General

IG-99-048 **September 24, 1999**
A9901502

Year 2000 Program Oversight of NASA Grants and Cooperative Agreements

Executive Summary

Background. In fiscal year 1998, NASA had 8,469 active grants and cooperative agreements totaling $5.4 billion. The grants and cooperative agreements were with educational institutions, hospitals, other non-profit organizations, and commercial firms and supported education and science and engineering research. Recipients of grants and cooperative agreements (hereafter referred to as recipients) are responsible for the scientific, administrative, and financial aspects of the supported research activity. This responsibility includes anticipating and reacting to events such as the Year 2000 (Y2K) problem[1] and mitigating potential, costly problems caused by the use of noncompliant systems. Recipients must take appropriate steps to ensure that NASA programs and projects will not be adversely affected by the Y2K-date problem.

Objective. Our overall audit objective was to evaluate the adequacy of NASA's Y2K program-level, end-to-end testing efforts (see Appendix B). During the audit, we identified an issue regarding the Agency's Y2K program oversight of grants and cooperative agreements. We evaluated NASA's efforts to ensure that NASA-funded research done under grants and cooperative agreements will not be adversely affected by the Y2K-date problem.[2] Details on our audit objective, scope, and methodology are in Appendix A. Other reports we have issued on the Y2K-date problem are discussed in Appendix D.

Results of Audit. NASA can improve Y2K program oversight of its grants and cooperative agreements. Specifically, NASA requires recipients to report significant Y2K-related problems, but NASA has not established timeframes for such reporting. Additionally, NASA does not require recipients to report on whether recipient computer systems are Y2K compliant. The combination of these conditions limits NASA's ability to determine whether Y2K-related problems exist but have not yet been reported. As a result, the Agency lacks reasonable assurance that it will receive research results that are not adversely affected by Y2K-date problems or notification of such problems in time to take corrective action.

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[1] The Y2K date conversion problem affects computer systems worldwide. Software application programs that use a standard two-digit format (mm/dd/yy) to generate a date may not work properly after the year 2000. Systems that will continue to function properly are designated "Y2K compliant." Systems that are not "Y2K compliant" are at risk of failure and may cause other systems to fail.

[2] We performed field work at nine NASA Centers and Headquarters. We did not perform field work at the Jet Propulsion Laboratory.

Recommendations. NASA management should request major[3] recipients to report to the cognizant NASA procurement office by September 30, 1999, on whether recipient computer systems are Y2K compliant and on significant Y2K-related problems. Also, NASA management should require appropriate remedial actions to address any Y2K-related problems identified by the major recipients.

Management's Response. Management concurred with each recommendation. With regard to major recipients, NASA agreed to request responses from the 20 largest recipients by October 29, 1999. Those 20 recipients received about 50 percent of the total dollar value of fiscal year 1998 grants and cooperative agreements. Based on the response received, NASA will determine whether further action is required. The complete text of the response is in Appendix E. We consider management's comments responsive.

[3] The Office Inspector General defined "major recipients" as those recipients of grants or cooperative agreements having a cumulative award value of at least $2 million. In fiscal year 1998, major recipients totaled 148; NASA had awarded them about 70 percent of the value of total, active NASA grants and cooperative agreements.

Introduction

NASA awards research grants and cooperative agreements when the principal purpose is to accomplish support by transferring resources such as funds, facilities, and equipment to the recipient. NASA also sponsors research to accomplish Agency objectives by:

- stimulating or supporting the acquisition of knowledge or understanding of the subject or phenomena under study and

- attempting to determine and exploit the potential of scientific discoveries or improvements in technology, materials, processes, methods, devices, or techniques and to advance the state of the art of the area under study.

While recipients may use information technology[4] to produce research results, recipients do not provide information technology products or services under NASA grants and cooperative agreements. Rather, the deliverable is a report containing the results and conclusions derived from the research.

NASA Centers administer grants and cooperative agreements under the direction of the NASA Office of Procurement. The Office of Procurement's Sponsored Research Business Activity coordinates Agency procedures and seeks to standardize and improve the use of all noncontract methods of acquisition, with special focus on grants and cooperative agreements. Also, Y2K procurement representatives at each Center monitor procurement activities for Y2K impact.

[4] Information technology refers to hardware, software, and firmware (software that is stored in programmable read-only memory), including embedded systems or any other electromechanical or processor-based systems.

Finding and Recommendations

Adequacy of Y2K Program Oversight of NASA Grants and Cooperative Agreements

NASA can improve Y2K program oversight of its grants and cooperative agreements. Centers have imposed different levels of reporting requirements on their recipients as a result of conflicting NASA guidance, and NASA has not fully complied with Office of Management and Budget (OMB) guidance, which states that agencies should request notification of potential Y2K-related problems. Without uniform and specific Y2K reporting requirements, the Agency lacks reasonable assurance that it will receive research results that are unaffected by erroneous Y2K date-sensitive data or that it will receive information on or notification of Y2K-related problems in time to ensure corrective action is taken

Federal and NASA Guidance for Y2K Program Oversight

On August 19, 1998, the OMB issued a memorandum to the President's Management Council to ensure that Federal agencies provide appropriate Y2K program oversight. OMB requires grant-making agencies to instruct recipients to:

- Identify systems critical to the management of Federal programs.
- Assess whether the systems are Y2K compliant.
- Remediate Y2K-related problems and validate the success of the renovation efforts.
- Advise Federal agencies if the assessment discloses significant Y2K-related problems with their federally funded activities.

Additionally, the NASA Chief Information Officer (CIO) and Associate Administrator for Procurement have issued memorandums on the Y2K-date problem to Center Directors, procurement officers, and CIO representatives:

- "Y2K Computer Compliance," dated September 8, 1997.
- "Information Technology and the Y2K," dated March 31, 1998.

The NASA memorandums established Center-level Y2K program oversight responsibilities, which were consistent with the OMB memorandum to the President's Management Council. The NASA guidance requires Procurement officials to request notification from recipients if the recipients determined that Y2K-related problems will significantly affect their sponsored research activities.

Adequacy of Oversight

The Offices of Procurement and the CIO have not provided the level of oversight needed to ensure that the computer systems used by recipients to perform research are Y2K compliant or that recipients will have sufficient time to correct noncompliant systems by January 1, 2000. Headquarters Procurement and CIO officials did not know whether Center procurement officers had notified recipients of their Y2K responsibilities and requested them to notify the cognizant Center procurement office of potential Y2K-related problems that could affect NASA-funded research.

Instead of uniformly implementing the Y2K program oversight responsibilities established by the September 1997 and March 1998 memorandums, the Centers took the following actions (further described in Appendix C):

- Three Centers devised Y2K-compliance clauses and began including them in new and existing grants and cooperative agreements.

- Three Centers contacted recipients to notify them of their Y2K responsibilities.

- Four Centers relied on the NASA Administrator's May 1998 letters to recipients[5] to justify disposition of their Y2K program oversight responsibilities.

- One Center ceased contacting recipients and requesting notification of significant Y2K-related problems upon issuance of the Procurement Office's answers to "frequently asked questions" (FAQ's), which are discussed below.

- As of July 23, 1999, only one Center continued to require notification if a recipient determined that the Y2K-date problem may have a significant effect on its NASA-funded research.

To compound the lack of Center oversight, recipients may not have time to correct noncompliant systems by the end of the year. Although the NASA memorandums did not require the Centers to establish a time frame for recipient reporting of anticipated Y2K-related problems, they did state that the information should be received as soon as possible.

NASA Guidance

Y2K program oversight of grants and cooperative agreements needs improvement because NASA issued conflicting guidance. In addition to the September 1997 and March 1998 memorandums, the Office of Procurement issued Procurement Information Circulars (PIC's)

[5] In May 1998, the NASA Administrator sent advisory letters to all universities, corporations, and non-profit organizations that do business with NASA. The Administrator required NASA's business partners to meet all contractual, grant, and cooperative agreement obligations regarding Y2K compliance, but did not require them to notify NASA of Y2K-related problems, as directed by OMB.

and "Year 2000 Frequently Asked Questions" regarding Y2K compliance requirements for recipients. The additional guidance reduced the effectiveness of the September 1997 and March 1998 memorandums. Specifically, the PIC's canceled the March 1998 memorandum. Also, neither the PIC's nor the FAQ's reestablished Y2K program oversight responsibilities for the Centers; consequently, the Centers imposed different levels of reporting requirements on their recipients. For example, only Glenn Research Center actively requests that recipients report potential Y2K-related problems. Also, NASA did not fully comply with OMB guidance, which requires agencies to ask recipients to notify them of anticipated significant Y2K-related problems. A discussion of the PIC's and the FAQ's follows.

Procurement Information Circulars 98-8 and 98-9. In May 1998, the Associate Administrator for Procurement issued NASA PIC's 98-8 and 98-9 to specify the Agency's Y2K procurement policy for new and existing contracts. Although the PIC's did not apply to grants and cooperative agreements, they had the effect of superseding and canceling the March 1998 memorandum, including the requirements relating to grants and cooperative agreements (see the table on the next page).

CIO officials stated that the PIC's were not intended to relieve the Centers of their grant and cooperative agreement oversight responsibilities. Rather, as required by the September 1997 memorandum, Centers remained responsible for making recipients aware of the need for Y2K compliance and for requesting notification of potential Y2K-related problems.

After issuance of the PIC's, Center procurement officers were unsure whether the new PIC requirements applied to assistance agreements, including grants. To address concerns raised by the Centers regarding application of the PIC's, NASA Headquarters issued "Year 2000 Frequently Asked Questions," dated June 1998.

Frequently Asked Questions. Headquarters' responses to the June 1998 FAQ's were inconsistent with the oversight responsibilities described in the Agency's September 1997 and March 1998 memorandums. The FAQ's stated that the Administrator, "has sent a letter to all the grant institutions that addresses awareness. Beyond that, there should not be much risk to NASA." (See the table.) As a result of the FAQ's, four Centers did not implement the requirements stated in the September 1997 and March 1998 memorandums. Instead, the Centers relied on the Administrator's letter as disposition of their Y2K program oversight responsibilities. Actions taken by other Centers are described in Appendix C.

Although the Administrator's letter addressed the need for recipient Y2K compliance, the letters did not specifically request that recipients provide notification if they anticipated significant Y2K-related problems that might affect NASA-funded research. According to the September 1997 and March 1998 memorandums, such requests were the Centers' responsibility. Furthermore, the OMB guidance dated August 1998 requires agencies to request notification of potential Y2K-related problems. NASA Procurement and CIO officials stated that the Agency's expectation for notification of potential Y2K-related problems was

inherent in all grants and cooperative agreements; accordingly, officials incorrectly believed that the Administrator's letter adequately addressed Y2K program oversight of grants and cooperative agreements.

Summary of NASA Guidance Issued as of July 23, 1999

Date	Form	Description
September 1997 and March 1998	Policy memorandums from NASA Headquarters to Centers	Instructed NASA Centers to: • Make recipients aware of their Y2K responsibilities. • Request notification if a recipient determines that the Y2K-date problem will have a significant impact on its activities.
May 1998	PIC's 98-8 and 98-9	Superseded and canceled the March 1998 policy memorandum.
May 1998	Letter from NASA Administrator to recipients	Stated that: • Recipients must meet obligations to be Y2K compliant. • All deliverables must demonstrate compliance.
June 1998	FAQ's	Stated that: • PIC's 98-8 and 98-9 do not apply to grants. • The NASA Administrator made recipients aware of the need for Y2K compliance in his May 1998 letter. • Noncompliant grantees pose a low Y2K risk to the Agency. • Centers are not required to include a Y2K-compliance clause in new or existing grant agreements.

Potential Effects on Research Results

Research performed under grants and cooperative agreements is important to NASA's mission, and sponsored research represents a significant portion of the Agency's procurement activities. Without uniform and specific Y2K reporting requirements, the Agency lacks reasonable assurance that it will receive research results that are unaffected by erroneous Y2K date-sensitive data. Also, without timely reporting by recipients, NASA may be unable to take appropriate remedial action by January 1, 2000. Adequate oversight is needed to mitigate potential, costly Y2K-related problems and to protect NASA's substantial investment in basic research.

Recommendations, Management's Response, and Evaluation of Response

1. **The NASA Associate Administrator for Procurement and the NASA Chief Information Officer should request major recipients of grants and cooperative agreements to report on whether recipient computer systems are Y2K compliant and to report any significant Y2K-related problems to the cognizant NASA procurement office by September 30, 1999.**

2. **The NASA Associate Administrator for Procurement and the NASA Chief Information Officer should take appropriate remedial action to address any Y2K-related problems identified by the major recipients of grants and cooperative agreements.**

Management's Response. Concur. The NASA Associate Administrator for Procurement has issued Y2K status request letters to the recipients of the 20 grants and cooperative agreements having the highest dollar value in fiscal year 1998. These entities represent about 50 percent of all NASA-sponsored research obligations and are to respond to the NASA Sponsored Research Business Activity by October 29, 1999. NASA management will determine whether further corrective action is necessary based on the responses to the Y2K status letters.

The NASA Office of Procurement took exception to the report statement that "Research performed under grants and cooperative agreements is critical to NASA's mission . . . . ." The Procurement Office stated that sponsored research is a fundamental and important part of NASA's activities, but is not critical to NASA's mission.

The complete text of management's response is in Appendix E.

Evaluation of Response. Management's actions are responsive to the recommendations. We accept management's proposed completion date of October 29, 1999, for recommendation 1. Also, we have revised the report to characterize sponsored research as "important" rather than "critical" to NASA's mission. The recommendations are resolved but will remain undispositioned and open until agreed-to actions are completed.

Appendix A. Objective, Scope, and Methodology

Objective

Our overall audit objective was to evaluate the adequacy of NASA's Y2K program-level, end-to-end testing efforts (discussed in Appendix B). During the audit, we identified an issue regarding the Agency's Y2K program oversight of grants and cooperative agreements. We evaluated the Agency's efforts to ensure that NASA-funded research will not be adversely affected by the Y2K-date problem.

Scope and Methodology

We performed work at NASA Headquarters and at nine NASA Centers. Specifically, we:

- Interviewed NASA management representatives to identify Y2K policies and procedures.
- Reviewed OMB and NASA guidance, including the NASA Grant and Cooperative Agreement Handbook, to determine applicable Y2K policies, procedures, and requirements.
- Surveyed nine NASA Centers to determine their activities regarding Y2K compliance of recipients.
- Obtained information from the National Science Foundation and National Institutes of Health to determine best practices for addressing Y2K compliance of recipients.
- Queried NASA's Financial and Contractual Status on-line system to determine the total universe of active grants and cooperative agreements in fiscal year 1998 ($5.4 billion) and the awards associated with the major recipients ($3.7 billion).
- Examined applicable documents dated from September 1997 through July 1999.

Management Controls Reviewed

We reviewed NASA policies regarding Y2K compliance of recipients to determine whether the Agency had issued clear guidance to its Centers. We also compared NASA policies and OMB requirements. Finally, we reviewed Center activities to determine whether the Centers complied with internal and external requirements and imposed consistent reporting requirements on their recipients. We considered the management controls to be adequate except for those discussed in the Finding.

Appendix A

Audit Field Work

We performed the audit field work for this report from June through July 1999. We conducted the audit in accordance with generally accepted government auditing standards.

Appendix B. Other Matters of Interest

Program-Level, End-to-End Testing

NASA instructed the four Enterprises[6] to conduct program-level, end-to-end tests[7] as additional assurance that major programs and missions will not be adversely affected by the Y2K-date problem. On November 17, 1998, the NASA CIO issued a letter to the Headquarters Officials-in-Charge, NASA Center Directors, and the Director of the Jet Propulsion Laboratory (JPL). The CIO required each NASA Enterprise to identify programs or missions that will conduct Y2K end-to-end testing during 1999. The Enterprises were to include in their program-level, end-to-end test plans those operational programs reviewed at the Agency- or Lead Center-level Program Management Councils. Furthermore, the Enterprises could include other missions or programs based on mission or Y2K risk, criticality, or complexity.

Objective

Our overall objective was to evaluate the adequacy of NASA's Y2K program-level, end-to-end testing efforts. Specifically, we determined whether:

- mission-critical systems will be excluded from test plans and
- NASA's approach to program-level, end-to-end testing was reasonable.

Scope and Methodology

We performed work at NASA Headquarters. During audit field work, we:

- Interviewed CIO officials to determine NASA Enterprise approaches to program-level, end-to-end testing.
- Interviewed representatives from OMB and the President's Council on Y2K Conversion to identify Government-wide activities regarding program-level, end-to-end testing.

[6] The four NASA Enterprises are (1) Aero-Space Technology, (2) Earth Science, (3) Human Exploration and Development of Space, and (4) Space Science.

[7] Y2K program-level, end-to-end testing is comprehensive testing of all system components supporting a science program or mission. For example, the Space Shuttle Program end-to-end tests will verify that all aspects of the program, including the Space Shuttle vehicle, engineering analysis facilities, control centers, training simulators, and networks will be functional in the year 2000. This will be a high-visibility test and will serve as final proof of Y2K readiness.

- Reviewed "Year 2000 Computing Crisis: A Testing Guide," issued by the General Accounting Office in November 1998; the "NASA Year 2000 Program Plan," dated June 1998; and the "NASA Year 2000 Agency Test and Certification Guidelines and Requirements," dated July 1998, to determine applicable requirements.

- Evaluated testing information provided by the Enterprises and the Space Operations Management Office for the period June 1998 through June 1999, for 103 of NASA's 158 mission-critical systems.

Conclusions

NASA's approach to program-level, end-to-end testing was reasonable. Of the 103 mission-critical systems reviewed, NASA will exclude 42 from Y2K program-level, end-to-end tests. Enterprise officials chose to exclude the systems from testing because the systems are (1) not date affected, (2) under development, (3) being replaced or retired, or (4) providing only indirect support to a program. The officials also excluded stand-alone systems that do not exchange data with other systems. Also, Enterprise officials determined that program-level, end-to-end testing of certain systems posed too high a risk to the operations of key programs. Therefore, Y2K compliance was demonstrated through other means.

We determined that a program-level test could include transmission of data to or from a principal investigator who works under a NASA grant or cooperative agreement. NASA-funded research results can be adversely affected if the recipient relies on noncompliant systems to perform the research. Accordingly, we reviewed Agency efforts to ensure that research results from grants and cooperative agreements will not be adversely affected by the Y2K-date problem. The results of that work are discussed in the Finding segment of this report.

Appendix C. NASA Center Activities

NASA Center	Actions Taken Regarding Y2K Program Oversight of Grants and Cooperative Agreements
Ames Research Center	• Relied on the NASA Administrator's May 1998 letter as disposition of oversight responsibilities.
Dryden Flight Research Center	Has taken no action because Center Procurement officials believed: • Grantee institutions already have self-imposed requirements to be Y2K compliant. • The subject of many grants and agreements does not require Y2K compliance.
John H. Glenn Research Center at Lewis Field	• Sent letters to all recipients, requiring Y2K compliance and requesting notification of potential Y2K-related problems. • Posted Y2K requirements on Center Web site. • Modified new and existing agreements to include a special Y2K-compliance provision.
Goddard Space Flight Center	• The Center Y2K Program Manager advised the technical organizations and procurement officers to "be sure they work with the grant recipients as appropriate, regarding Y2K." • Relied on the NASA Administrator's May 1998 letter as disposition of oversight responsibilities.
Lyndon B. Johnson Space Center	• Sent letters to all recipients reminding them of their Y2K responsibilities and requesting notification of potential Y2K-related problems. • Suspended all Y2K activities relating to grants and cooperative agreements upon issuance of answers to FAQ's.
John F. Kennedy Space Center	• Where applicable, modified agreements to include a Y2K-compliance clause addressing the need for compliance of hardware and software deliverables.
Langley Research Center	• Reviewed each grant and cooperative agreement proposal for unique cases in which Y2K compliance might be needed. • Relied on the NASA Administrator's May 1998 letter as disposition of oversight responsibilities.
George C. Marshall Space Flight Center	• Sent letters to recipients reminding them that all hardware, software, and firmware* supporting NASA initiatives must be Y2K compliant.
John C. Stennis Space Center	• Modified agreements to include a Y2K-compliance clause addressing the need for compliance of hardware and software deliverables only. • Center procurement officers reviewed their agreements and determined that recipients would not provide hardware and software deliverables. Therefore, the Center relied on the NASA Administrator's May 1998 letters instead of directly contacting recipients.

* Firmware is software that is stored in programmable read-only memory.

Appendix D. Summary of Prior Audit Coverage

The NASA Office of Inspector General has issued four final reports relating to the Y2K date problem. The reports are summarized below. (Copies of the reports are available at http://www.hq.nasa.gov/office/oig/hq/issuedaudits.html)

"NASA's Year 2000 Program – Renovation and Validation Phases," Report Number IG-99-034, September 20, 1999. The Agency guidelines for the renovation and validation phases were generally consistent with General Accounting Office guidance for addressing Y2K date conversion problems. Also, for those inventory items reviewed, documented evidence indicated general compliance with the Agency's renovation and validation phase requirements at five of the six locations audited. JPL had generally complied with the renovation and validation phase requirements for nonmission-critical systems (systems that have minimal impact and risk), but had not progressed sufficiently for us to determine the adequacy of its validation efforts for mission-critical systems (systems that have high impact or risk). JPL reported that it had completed the validation test phase for only one of four mission-critical systems. Regarding NASA's Y2K reporting to OMB, nothing came to our attention to indicate a material problem. This report contains no recommendations for corrective action.

"Year 2000 Program – Implementation Phase," Report Number IG-99-044, September 17, 1999. Under the leadership of the NASA Chief Information Officer, the Agency has been actively engaged in developing business continuity and contingency plans to prepare for Y2K-related failures. However, as of June 30, 1999, the four NASA installations reviewed had not incorporated various key elements into the business continuity and contingency plans and contingency test plans. (NASA will be updating its business continuity and contingency plans and test plans through November 1999.) Consequently, NASA lacks assurance that it can effectively respond to Y2K-related failures. We recommended that the NASA Chief Information Officer request Center and Enterprise managers to incorporate all key elements in the business continuity and contingency plans and update the Agency's business continuity and contingency plan guidance to address key test plan elements. Management concurred with both recommendations.

"**Exemptions for Year 2000 Testing," Report Number IG-99-025, May 13, 1999.** The Johnson Space Center, Financial Management Division, completed testing of the Center Financial System before NASA issued its July 1998 Testing and Certification Guidelines and Requirements, but did not obtain an exemption from use of the NASA guidance. The Johnson Chief Information Officer had not established procedures to implement the exemption process. Without the exemption, the Center lacks reasonable assurance that the Center Financial System will meet the minimum NASA testing requirements for Y2K compliance. We made four recommendations related to procedures for testing and exemptions of information technology assets that completed testing before the issuance of NASA's testing guidelines. Management concurred with the recommendations.

"Year 2000 Program Compliance Requirements in NASA Information Technology-Related Contracts," Report Number IG-99-022, March 31, 1999. NASA lacks reasonable assurance that its systems will be Y2K compliant on January 1, 2000. The Agency issued Y2K guidance for installations to follow when acquiring, operating, and maintaining information technology assets. The guidance required contracting officers to include a clause addressing Y2K in information technology solicitations and new contracts. Also, contracting officers were required to modify the statement of work to address Y2K in existing information technology operation and maintenance contracts. Each of the six locations audited had included the NASA-directed Y2K requirements in solicitations and new contracts used to acquire information technology assets. However, JPL had not included the NASA-directed requirements in all its applicable information technology operation and maintenance contracts as of January 31, 1999. JPL management attributed its delay to other workload priorities. Untimely incorporation of the Y2K compliance requirements into NASA contracts adversely affects the Agency's ability to meet OMB's milestones for Y2K renovation, validation, and implementation phases and increases the potential for noncompliant Agency systems on January 1, 2000. Also, contractors may not be held accountable for ensuring Y2K compliance if the requirements are not incorporated. We recommended that the NASA Chief Information Officer (1) coordinate with the NASA Management Office at JPL to establish a target date(s) for JPL completion and (2) monitor JPL's progress in meeting the target date(s). Management concurred with both recommendations.

"Year 2000 Program Oversight of NASA's Production Contractors," Report Number IG-99-004, December 17, 1998. NASA lacked reasonable assurance that its production contractors would provide Y2K-compliant data to support the Agency's key financial and program management activities. This condition occurred because NASA had not asked the two principal Department of Defense audit and contract administration agencies, the Defense Contract Audit Agency and the Defense Contract Management Command, to conduct Y2K reviews at NASA's major contractor locations. As a result, the Agency risks using non-compliant data that may adversely affect the Agency's control, budgeting, program management, and cost accounting activities. We made two recommendations to NASA relating to the Y2K status of its major contractors. Management concurred with the intent of the recommendations and issued a letter to the Defense Contract Audit Agency requesting data on Y2K coverage of the Agency's major contractors. In addition, NASA issued a letter to its Center Procurement Officers instructing them to monitor Y2K problems identified by the Defense Contract Audit Agency.

"Year 2000 Date Conversion – Assessment Phase," Report Number IG-98-040, September 30, 1998. Some NASA Centers did not have documented support for Y2K cost estimates reported to OMB and did not prepare estimates using a consistent methodology.

Also, documentation did not always exist to support the manner in which Center assessments and decisions for Y2K compliance were conducted. The audit showed that NASA Centers

Appendix D

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also needed to improve the sharing of information on the status of Y2K compliance associated with commercial off-the-shelf products. We made three recommendations to assist NASA in addressing the Y2K date conversion problem. Management concurred with the two
recommendations concerning documentation for Y2K assessments and the sharing of information on commercial off-the-shelf products. Management did not concur with the recommendation concerning guidance for Y2K cost estimates, stating that adequate guidance on cost estimation had been provided to NASA Centers. This issue remains unresolved.

Appendix E. Management's Response

National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001

Reply to Attn of HC

SEP 15 1999

TO: W/Assistant Inspector General for Auditing

VIA: AO/Chief Information Officer

FROM: HC/Director, Analysis Division

SUBJECT: Code H Response to OIG Draft Audit Report on Y2K Program Oversight of NASA Grants and Cooperative Agreements, Assignment No. A9901502

Enclosed is our response to the subject report dated August 12, 1999.

Please call Steven Miley at 202-358-0493 or Jack Horvath at 202-358-0456 if you have any questions or need further coordination on this matter.

Anne Guenther

Anne Guenther

Enclosure

Appendix E

Code H's narrative response is provided as follows:

OIG RECOMMENDATION 1:

The NASA Associate Administrator for Procurement and the NASA Chief Information Officer should request major recipients of grants and cooperative agreements to report on whether recipient computer systems are Y2K compliant and to report any significant Y2K-related problems to the cognizant NASA procurement office by October 30, 1999.

CODES H AND AO RESPONSE TO RECOMMENDATION 1: CONCUR WITH COMMENT

NASA concurs in principle with this recommendation, and plans to take action. The NASA Headquarters Office of Procurement has issued Y2K status request letters to the entities listed as Enclosure 1. These entities represent approximately 50 percent of all NASA sponsored research obligations, sorted separately for grants and cooperative agreements. A sample letter is included as Enclosure 2.

The NASA Office of Procurement takes exception to the statement on page 5, first sentence under the paragraph heading "Potential Effects on Research Results," which reads, "Research performed under grants and cooperative agreements is critical to NASA's mission, and sponsored research represents a significant portion of the Agency's procurement activities." While sponsored research is a fundamental and important part of NASA's activities, grants are not critical to NASA's mission. Most grants and cooperative agreements are for basic research, and to stimulate a public purpose , the results of which may benefit NASA and the scientific community. Efforts that are critical to a NASA mission are generally performed under procurement contracts and are designed to fill the needs of a specific NASA mission. Please correct this statement in the final audit report.

CORRECTIVE ACTION OFFICIAL:	Code HC/S. Miley
CORRECTIVE ACTION CLOSURE OFFICIAL:	Code HC/A. Guenther
PROJECTED CORRECTIVE ACTION CLOSURE DATE:	October 30, 1999

OIG RECOMMENDATION 2:

The NASA Associate Administrator for Procurement and the NASA Chief Information Officer should take appropriate remedial action to address any Y2K-related problems identified by the major recipients of grants and cooperative agreements.

CODES H AND AO RESPONSE TO RECOMMENDATION 2: CONCUR WITH COMMENT

Based upon the responses we receive, NASA management will determine whether further specific corrective action is necessary to seek reasonable assurance that NASA's interests are protected.

CORRECTIVE ACTION OFFICIAL:	Code HC/ S. Miley
CORRECTIVE ACTION CLOSURE OFFICIAL:	Code HC/A. Guenther
PROJECTED CORRECTIVE ACTION CLOSURE DATE:	TBD

FY'98 Top 20 Highest Dollar Value Grants and Cooperative Agreements

CONTRACTOR	CONTRACT	CENTER	EST. VALUE	CUM. VALUE
Cooperative Agreements			0	
LOCKHEED MARTIN CORP	NCC 8 115	MSFC	910,740	910,740
BOEING NORTH AMERICAN INC	NCC 8 190	MSFC	88,100	998,840
AMERICAN TECHNOLOGY ALLIANCES	NCC 2 4004	DFRC	78,850	1,077,690
WHEELING JESUIT UNIV	NCCW 65	GSFC	57,093	1,134,783
		TOTAL VALUE CA AWARDS		**2,114,711**
Grants				
HISPANIC ASSOCIATION CLG & UNI	NAG 5 3491	GSFC	53,000	53,000
STANFORD UNIV	NAG 5 3077	GSFC	22,112	75,112
NORTH CAROLINA STATE UNIV	NAGW 1331	HDQTR	20,635	95,747
WHEELING JESUIT UNIV	NAGW 2486	HDQTR	20,000	115,747
UNIV ARIZONA	NAGW 1332	HDQTR	19,515	135,262
UNIV TENNESSEE KNOXVILLE	NAG 5 3464	GSFC	15,090	150,352
CALIF INSTITUTE TECHNOLOGY	NAG 5 1611	GSFC	12,647	162,999
HARVARD UNIV	NAG 1 1305	LARC	12,557	175,556
KANSAS STATE UNIV	NAGW 2328	HDQTR	11,689	187,245
UNIV ARIZONA	NAG 5 3042	GSFC	11,266	198,511
PRINCETON UNIV	NAG 5 616	GSFC	10,712	209,223
TEXAS A & M UNIV	NAGW 1194	HDQTR	10,643	219,866
UNIV CALIF BERKELEY	NAG 5 3596	GSFC	9,256	229,122
CALIF INSTITUTE TECHNOLOGY	NAG 5 6912	GSFC	8,826	237,948
UNIV VIRGINIA	NAG 1 745	LARC	8,725	246,673
UNIV TEXAS AUSTIN	NAG 5 1603	GSFC	8,634	255,307
		TOTAL VALUE CA AWARDS		**510,614**

*Values are in thousands$$

FY'98 Top 20 Highest Dollar Value Grants and Cooperative Agreements

	TITLE/DESCRIPTION OF RESEARCH
NCC 8 115	R/S X-33 PHASE II, DESIGN AND DEVELOPMENT
NCC 8 190	X-37 - FUTURE X PATHFINDER FLIGHT DEMONSTRATOR
NCC 2 4004	JOINT SPONSORED RESEARCH AGREEMENT IN SUPPORT OF THE ERAST PROGRAM
NCCW 65	NATIONAL TECHNOLOGY TRANSFER CENTER
NAG 5 3491	PROYECTO ACCESS
NAG 5 3077	SOLAR OSCILLATIONS INVESTIGATION - MISSION OBSERVATIONS AND DATA ANALYSIS
NAGW 1331	SPACE ENGINEERING RESEARCH CENTER
NAGW 2486	DESIGN AND CONSTRUCTION MANAGEMENT SERVICES FOR THE CLASSROOM OF THE FUTURE PROJECT
NAGW 1332	CENTER FOR UTIL. OF LOCAL PLANETARY RESOURCES
NAG 5 3464	INNOVATIVE RESEARCH PROGRAM - ISOTOPE MEASUREMENTS
NAG 5 1611	EXTENSION OF THE WIDE FIELD I PLANETARY CAMERA POST-LAUNCH SCIENCE AND ENGINEERING ACTIVITIES
NAG 1 1305	HIGH ALTITUDE AIRCRAFT AND BALLOON-BORNE OBSERVATION IN EARTH'S STRATOSPHERE
NAGW 2328	THE CENTER FOR GRAVITATIONAL STUDIES IN CELLULAR AND DEVELOPMENTAL BIOLOGY
NAG 5 3042	HUBBLE SPACE TELESCOPE (HST) NEAR-INFRARED CAMERA AND MULTI-OBJECT SPECTROMETER(NICMOS)
NAG 5 616	INTERSTELLAR MEDIUM ABSORPTION PROFILE SPCETROGRAPH (IMAPS)
NAGW 1194	CENTER FOR THE COMMERCIAL DEVE. OF SPACE POWER
NAG 5 3596	MISSION OPERATIONS AND DATA ANALYSIS FOR THE FAST AURORAL SNAPSHOT EXPLORER (FAST) MISSION
NAG 5 6912	MO&DA OF THE ADVANCED COMPOSITION EXPLORER MISSION
NAG 1 745	ENVIRONMENT ASSISTED DEGRADATION MECHANISMS IN ALUMINUM-LITHIUM ALLOYS
NAG 5 1603	HST - GTO

HC

Grant/Cooperative Agreement Recipient
Address
Address
Address
Address

Dear Recipient:

The NASA Administrator issued a letter to all grant and cooperative agreement recipients in June 1998 describing the urgency of the Year 2000 (Y2K) problem. NASA is committed to ensuring that NASA's missions and programs move smoothly into the new millennium. As of August 15, 1999, NASA completed implementation on all mission-critical systems. We have also tested software and hardware for NASA's wide range of spacecraft, satellites, instruments, aircraft, and supporting ground control/mission operations systems as well as our unique research and development infrastructure that includes hundreds of simulators, wind tunnels, test beds, computational facilities, and propulsion and flight test facilities.

As part of this effort, major recipients of NASA funds are requested to identify research related information systems that are non-Y2K compliant. Please notify NASA by October 29, 1999 at the following address of systems that pose a significant risk to NASA-funded research. Negative replies are also requested.

NASA Sponsored Research Business Activity
Code HC/Analysis Division
300 E Street, SW
Washington, DC 20546

Thank you for your assistance in this matter. Your questions or comments may be directed to Steve Miley, at (202) 358-0493.

Sincerely,

Tom Luedtke
Associate Administrator
for Procurement

Appendix F. Report Distribution

National Aeronautics and Space Administration (NASA) Headquarters

A/Administrator
AI/Associate Deputy Administrator
AO/Chief Information Officer
B/Chief Financial Officer
B/Comptroller
BF/Director, Financial Management Division
C/Associate Administrator for Headquarters Operations
G/General Counsel
H/Associate Administrator for Procurement
J/Associate Administrator for Management Systems
JM/Director, Management Assessment Division
L/Associate Administrator for Legislative Affairs
M/Associate Administrator for Space Flight
Q/Associate Administrator for Safety and Mission Assurance
P/Associate Administrator for Public Affairs
R/Associate Administrator for Aero-Space Technology
S/Associate Administrator for Space Science
U/Associate Administrator for Life and Microgravity Sciences and Applications
Y/Associate Administrator for Earth Science
Z/Associate Administrator for Policy and Plans

NASA Centers

Director, Ames Research Center
Director, Dryden Flight Research Center
Director, John H. Glenn Research Center at Lewis Field
Director, Goddard Space Flight Center
Chief Financial Officer, Goddard Space Flight Center
Director, Lyndon B. Johnson Space Center
Director, John F. Kennedy Space Center
Chief Counsel, John F. Kennedy Space Center
Director, Langley Research Center
Chief Financial Officer, Langley Research Center
Director, George C. Marshall Space Flight Center
Director, John C. Stennis Space Center

Non-NASA Federal Organizations and Individuals

Assistant to the President for Science and Technology Policy
Assistant to the President and Chair, President's Council on Y2K Conversion
Director, Office of Management and Budget
Deputy Director of Management, Office of Management and Budget
Deputy Associate Director, Energy and Science Division, Office of Management and Budget
Branch Chief, Science and Space Programs Branch, Energy and Science Division, Office of Management and Budget
Associate Director, National Security and International Affairs Division, Defense Acquisitions Issues, General Accounting Office
Professional Assistant, Senate Subcommittee on Science, Technology, and Space

Chairman and Ranking Minority Member – Congressional Committees and Subcommittees

Senate Committee on Appropriations
Senate Subcommittee on VA, HUD, and Independent Agencies
Senate Committee on Commerce, Science, and Transportation
Senate Subcommittee on Science, Technology, and Space
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on VA, HUD, and Independent Agencies
House Committee on Government Reform and Oversight
House Subcommittee on National Security, Veterans Affairs, and International Relations
House Committee on Science
House Subcommittee on Space and Aeronautics

Congressional Member

Honorable Pete Sessions, U.S. House of Representatives

Major Contributors to This Report

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